

# **EXHIBIT 44**

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## Recent Circuit Breaker Fire &

At approximately 9:00 PM on the evening of Sunday, February 11, 2018, a violent explosion occurred at the Monacillos Transmission Center (“MTC”) when a 115 thousand-volt (“kV”) Oil Circuit Breaker (“OCB”) ruptured. The MTC is located southeast of the city of San Juan (see Figure 1). The OCB that exploded was a General Electric unit that was installed in 1975, with over forty years of service. It was extremely fortunate that the explosion occurred at a time when no personnel were present, and there were no resulting injuries.



Figure 1: Map of San Juan area 115 kV lines with Monacillos shown

The ruptured OCB is being replaced by a SF6 (sulfur hexafluoride) breaker at a cost of approximately \$100,000, with an estimated repair time of eight days. A SF6 breaker represents a newer technology than the OCB technology.

Upon investigation and review of the existing records of OCBs on the PREPA system, it was discovered that there are 28-230 kV breakers and 134-115 kV breakers that are similar to that which ruptured at Monacillos. In addition, there are also 267-38 kV OCBs, plus 259 OCBs of lower voltages. While OCBs have been successfully used in the utility and industrial arena for years, in the case of PREPA, the age of some of these units causes a level of concern.

Circuit breakers, as the name implies, break a circuit to protect that circuit when an overload (high current) or short circuit (very high current) occurs. At lower voltages, a circuit breaker can simply open a set of contacts (at high speed) in air, and any arc between the contacts will be extinguished. However, as voltages increase, the speed and distance between contacts needed to extinguish an arc becomes too great from a practical standpoint, so different mediums are used between contacts that provide for arc control. One of the mediums that was used early on was oil. The oil used in OCBs is the same type that is

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used in transformers, and because of its properties, this oil insulates not only the contacts but also the high voltage components in the breaker from the container that the components are immersed in.

While OCBs are reliable and low-cost units, the dielectric strength (the ability to prevent arcing and electrical conduction) of the oil tends to weaken over time due to age, contamination by gases, and introduction of carbon particles which are produced when the breaker operates. Another consideration with OCBs is that the oil is flammable, and when dielectric strength becomes too weak, an explosion like the Monacillos event can occur.



Figure 2: Breaker Post Explosion



Figure 3: Resulting Fire post OCB Explosion at Monacillos

As can be seen from the pictures above, internal failure of an OCB can be catastrophic and dangerous not only to life and limb of personnel that might be in the area, but also to buildings and structures in proximity to the breaker failure.

It cannot be over-emphasized how important properly operating circuit breakers are to an electric system. There are OCBs that have been in operation since 1969 on the PREPA 230 kV system. The 115 kV system has OCBs that have been in operation since 1949, as does the 38 kV system. We are undertaking a review of the breaker system to determine the proper course of action for replacement in the future.

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